A STUDY ON PSYCHIATRIC MORBIDITY AND SEXUAL DYSFUNCTION IN INFERTILE WOMEN

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TAMILNADU

CERTIFICATE

This is to certify that this Dissertation entitled “PSYCHIATRIC MORBIDITY AND SEXUAL DYSFUNCTION IN INFERTILE WOMEN” presented herewith by Dr.M.SHANTHI MAHESHWARI to the faculty of Psychiatry , The TamilNadu Dr.M.G.R Medical University, Chennai in part fulfillment of the requirement for the award of M.D., Degree Branch XVIII [PSYCHIATRY] is a bonafide work carried out by her under my direct supervision and guidance.

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CONTENTS

TITLE	PAGE NO
1. INTRODUCTION	1
2. REVIEW OF LITERATURE	5
3. MATERIALS AND METHODS	28
4. RESULTS	39
5. DISCUSSION	60
6. CONCLUSION	68
7. BIBLIOGRAPHY	
8. APPENDICES	

CONCLUSION

INTRODUCTON

Centuries of misconceptions and myths regarding infertility have increased the problem. Motherhood is of great social significance and infertility is perceived as a threat to men's procreativity and the continuity of the lineage. (Jindal et al.1990, Jindal et al.1989, Singh et al.1993). Infertility can threaten a woman's identity, status and economic security and consequently, be a major source of anxiety leading to lowered self-esteem and a sense of powerlessness. Although perceptions of women's roles and attitudes may be shifting, particularly in the upper and middle classes, bearing a child still remains an important factor in the socio-economic well being of most Indian women (Dasgupta et al.1995). Therefore if a woman could not have children she is singled out, ostracised, ridiculed and stigmatised.

Infertility can also result in a strained relationship in the marital home. Men tend to hold their wives responsible for infertility and many wives tend to blame themselves for childlessness irrespective of who may be responsible (Desai et al.1992). In some cases women are threatened with another marriage or divorce and many fear abandonment and loss of social and economic security. They could also be victims of violence, abuse and social exclusion (Singh et al.1996).Though childlessness usually has a negative impact on marriage though some

husbands are supportive and defend their wives against family pressure or criticism (Widge et al. 2001).

Women go through various treatment-seeking modes to avoid the adverse consequences of childlessness. Adoption is not an acceptable option for many as women face psychological, familial and community pressure to produce a biological child (Unisa et al.1999). Couples seek varied traditional methods and religious practices, including visits to temples, abstaining from visiting place where a woman has delivered a child, observing various rituals and rites, wearing charms and visiting astrologers.

Couples may delay seeking medical advice because of the fear of a final definite diagnosis, emotional stress, the physical discomfort of the tests they would have to undergo and admitting failure in their efforts to conceive. Irrespective of who the infertile person is, it is the woman who usually initiates the first contact with a physician. Although most studies reveal that male participation in infertility diagnosis and treatment tends to be limited as infertility is perceived to be a woman's problem, in some contexts, husbands also participate and accept treatment if required (Unisa et al. 1999).

Stigmatising beliefs, limited male participation, cost, indifferent quality of care and lack of services in the public sector are major barriers

to prompt and appropriate treatment seeking. Patterns of treatment-seeking depend on the woman/couple's socio-economic status, decision-making within the family, the level of information and accessibility of treatment.

The problem is that infertility affects every aspect of a woman's life. It affects their relationship with their husbands because men and women don't respond to infertility in the same way. It affects their sex life because they're told when they can and can't have intercourse. It affects relationships with friends and family because everyone else seems to be getting pregnant effortlessly. It affects jobs because they have to miss tons of time for doctor's appointments and procedures. They feel helpless because they're going through all these invasive tests and procedures which hurt. And it costs a ton of money.

Infertility is a life crisis with invisible losses, and its consequences are manifold. But given the value Indians have placed on having children infertile couples should receive much more care and helped in their quest to complete a family.

SCOPE OF THE STUDY

The study focussed on psychiatric morbidity and sexual dysfunctions in infertile women, a common presentation in Gynaecology OP. The study aims to correlate socio-demographic variables, personality profile, duration of infertility, psychological symptoms and to understand the relationship of these variables.

PLAN OF THE STUDY

The present study has been planned as follows:

Review of literature

Methodology

Results and Interpretation

Discussion

Conclusion

REVIEW OF LITERATURE

The World Health Organisation (WHO), using a two-year reference period, defines primary infertility as the lack of conception despite cohabitation and exposure to pregnancy (WHO, 1991). Secondary infertility is defined as the failure to conceive following a previous pregnancy despite cohabitation and exposure to pregnancy (in the absence of contraception, breastfeeding or postpartum amenorrhoea) (WHO, 1991).

I. INFERTILITY IN ASIA AND INDIA

According to studies conducted by WHO, the extent of primary and secondary infertility in India is 3 and 8 per cent respectively. Recent National Family Health Survey 2 data, using childlessness as an indicator, estimates that 3.8 per cent of currently married women between the ages of 40-49 are childless.

Based on 1981 census data, childlessness amongst ever-married women in India is estimated to be about 6 per cent (Vermuri et al.1986). Evidence from community-based studies from across India suggests similar prevalence rates for childlessness (Bang et al. 1989, Kanani et al. 1994, Unisa et al. 1999).

The causes of primary and secondary infertility relate to both males and females, and the conditions that directly contribute to infertility

vary widely by region and culture (Farley et al. 1988). According to WHO multi-centric studies of infertility in India, 40 per cent of women and 73 per cent of men had no demonstrable cause of infertility (Cates et al. 1985).

Tubal factor was the most common cause of infertility among women (nearly 30 per cent), followed by anovulation (22 per cent). Among men accessory gland infection was the most common factor for infertility (8.8 per cent) (Cates et al.1985).

In cases where infertility is caused by infections, leading underlying factors are Sexually Transmitted Infections (STI) (Farley et al. 1988) and iatrogenic factors, including unsafe abortions and unhygienic delivery conditions (Kochar et al. 1980).

The WHO study shows, for example, that the dominant cause of infertility in Asia among women with a demonstrable cause was on account of either an STI or unsafe management of abortion or delivery. Among men with a demonstrable cause, about one in three may have become infertile as a result of an STI experience (Cates et al. 1985). In India, the prevalence of STIs was found to be high among women reporting infertility and pelvic inflammatory disease (Chhabra et al. 1992).

II. PSYCHOLOGICAL IMPLICATIONS OF INFERTILITY

The stress of the non-fulfillment of a wish for a child has been associated with emotional sequelae such as anger, depression, anxiety, marital problems, sexual dysfunction, and social isolation. There is no uniform description of what couples with infertility face. There is no one experience shared by all couples and infertility is not a static but a dynamic process. Even the apprehension that there may be a problem is a process and not a sudden realization. The psychological and behavioural aspects of infertility vary over time and depend on the duration of infertility and stage of treatment. The process is not linear (Daniluk et al.1988 , Domar et al.2000 , Oddens et al.1999). Couples experience stigma, sense of loss, and diminished self-esteem in the setting of their infertility (Nachtigall et al. 1992).

Ford et al. (1953) and Nesbitt et al. (1968) showed that infertile women experienced conflict over their femininity, and Sturgis et al. (1957) and Morris et al.(1959) demonstrated that infertile women experienced fear associated with reproduction. Anderson et al. (2003) showed that females reported a significantly greater infertility related concerns regarding life satisfaction, sexuality, self-blame, self-esteem and avoidance of friends compared with males.

Longer the infertility lasts more devastating are its effects. (Domar et al. 1992, Wang et al.2007, Verhaak et al.2007). Family and friends often do not grasp that infertility can be as emotionally challenging as life threatening diseases like cancer and HIV (Domar et al.1993)

Many couples with infertility problems report being jealous and feeling inadequate when meeting with other pregnant woman or couples with children. They may be frustrated and feel that life is unfair. They may feel guilty for having negative feelings like jealousy. (Mc naughton et al. 2000)

Balen et al. (2006) in his study among 108 couples with a mean infertility period of 8.6 years showed that the desire for children was still very strong especially among the women. Also, there were differences between men and women as to their motives for having a child. The most frequent motives for wanting a child are part of the categories happiness and well-being. Motives within the categories social control and continuity were seldom mentioned. Among women with the most intense desire for a child, motives within the categories motherhood and identity-development were very important.

Lau et al.(2008) in a study on 192 infertile couples found that of them, over 30% believed that childless couples could not live well, 80%

desired to have a child very badly, over 60% pressured themselves or spouse due to infertility, and over 50% felt pressured when having sex. Furthermore, 19.8% of men and 37.5% of women felt that infertility is humiliating for women. A multivariate analyses showed that a lower income, a worsened spousal relationship, infertility related perceptions, pressuring oneself or spouse due to infertility, and a strong desire for children were significantly associated with a lowered quality of life. Gender differences were also observed.

Fido et al. (2004) in his study compared, age-matched pregnant controls with infertile women. He found that infertile women exhibited a significant higher psychopathology in all HADS parameters in the form of tension, hostility, anxiety, depression, self-blame and suicidal ideation. The illiterate group attributed the causes of their infertility to supernatural causes such as evil spirits, witchcraft and God's retribution, while the educated group blamed nutritional, marital and psychosexual factors for their infertility. Faith and traditional healers were considered as the first treatment choice among illiterate women, while the educated women opted for an infertility clinic for treatment. Childlessness results in social stigmatization for infertile women and places them at risk of serious social and emotional consequences

III. COPING IN INFERTILITY

Although the couple should be viewed as a single unit in the treatment men often perceive infertility and respond to it differently than women. They may be less motivated and less distressed. (Greil et al. 1997, Guerra et al. 1998, Lee et al. 2000) .

In general, in infertile couples women show higher levels of distress than their male partners (Wright et al.1991, Greil et al.1988); however, men's responses to infertility closely approximates the intensity of women's responses when infertility is attributed to a male factor (Nachtigall et al.1992). Both men and women experience a sense of loss of identity and have pronounced feelings of defectiveness and incompetence.

Women also cope differently than men. Women want to talk about what they feel while men are more reluctant, women are open to discuss the subject with others while men often share the experience only with their wives. Women frequently take the active role and do some research while men try to remain calm and rational. Part of the effect of infertility on men is mediated through its effect on their wives. (Greil et al. 1997, McNaughton et al. 2000)

IV. INFERTILITY AND RELATIONSHIP PROBLEMS

Differences in the experience of and response to infertility can strain even the strongest relationship. Although some couples report that this experience strengthens their marriage many find it hard to communicate their emotions and feel that their partners are not empathic enough. (Lee et al. 2001)

How badly infertility would affect the couples life depends on the social support system they have, on their personality, on the strength of their marital relationship and how tolerant their environment is. (Koropatnick et al. 1993 , Slade et al. 2007).

Infertility can lead to anger, make couples feel defective ,introduce guilt and lower their self esteem . It can raise a sense that life is unpredictable and is not under control. It can cause couples to distance from the fertile world and avoid friends with children or attend family gatherings (Greil et al. 1997, Cousineau et al. 2007, Guerra et al. 1998).

Childlessness was found to result in perceived role failure, with social and emotional consequences for both men and women, and often resulted in social stigmatisation of the couple, particularly of the woman. Infertility places women at risk of social and familial displacement, and women clearly bear the greatest burden of infertility (Papreen et al 2000).

Studies among couples in fertility treatment have shown that infertility and treatment at the same time can be seen as a threat or a challenge for the couple and as a situation that can bring the partners closer together and strengthen the marriage (Greil et al. 1988, Schmidt et al. 1996).

Two common feelings in women are guilt and fear, especially so in the more traditional societies. Some feel that they cannot provide their husbands with a family and fear that they would leave them. Even when the husbands reassure them that they did not marry them simply to have children they find it hard to accept (Mc Naughton et al 2000).

Many infertile couples experience a serious strain on their interpersonal relationship. Infertility is a more stressful experience for women than it is for men. Most studies have found that the relationship between gender and infertility distress is not affected by which partner has the reproductive impairment (Greil et al.1988).

A Qualitative Study among infertile couples having stopped trying to conceive showed that the couples were able to acknowledge the gains that had been realized in their lives as a result of their infertility experience (Daniluk et al.2001). The participants in the qualitative studies described how the infertility experience forced the partners to talk about existential aspects of life and to talk about the emotional aspects of

infertility. Also the infertility experience could force the couple to manage new, stressful situations.

Infertility experience had strengthened their marriage and had improved the partners' mutual connection (Schmidt et al.2003, Daniluk et al.2001). Infertility studies have measured factors related to marital benefit e.g., relationship concern, marital quality and marital satisfaction and Newton et al.(1990) measured relationship concern which included items about marital communication and found a positive association between relationship concern and higher symptom ratings of depression.

Abbey et al.(1994) found that increased received emotional support between the partners was related to increased marital life quality.

V. INFERTILITY – A GRIEF REACTION

Society frequently fails to realize how much grief childlessness can carry. Couples often grieve their lost parenthood, lost child, lost dream and their lost sense of self control. Each unsuccessful cycle is perceived as a loss. Grieving is a normal response to this loss, but unlike losing a child the couples do not have memories to stick to and their grief is not acknowledged by society. (Menning et al. 1980)

The grieving process is characterised by intense fluctuations in emotions ranging from crying to laughing to being angry .Many couples

are surprised by the intensity of their mood swings as they pass through the various stages of grief. There are differences in the order and amount of time spent in each stage. The grieving process in is often stagnated and chronic, and acceptance and resolution is not psychologically possible until closure is achieved, either by becoming pregnant and giving birth, or ending infertility treatment and ceasing trying to conceive (Alesi et al.2005)

Infertile women are more likely to identify infertility treatment as the most distresing event in their lives, even more upsetting than the loss of a loved one, or divorce (Baram et al. 1988, Leiblum et al. 1987)

Recent research suggests that a significant number of dropouts from infertility treatment are also due to psychological factors (Domar et al. 2004, Hammarberg. et al 2001, Olivius et al. 2004).

VI. PERSONALITY CHARACTERISTICS AND INFERTILITY

Lalos et al. 1985 in their study on the social background and personality characteristics examined 30 infertile women with tubal damage and their partner . The emotional and social impact of infertility was assessed using symptom checklists, the Eysenck Personality Inventory and interviews. The infertile couples did not differ with respect to psychosocial background, current life situation, neuroticism or personality characteristics when compared to psychologically normal

controls. Infertility had severe emotional and social effects. Grief, depression, guilt, feelings of inferiority and isolation were commonly reported. The women openly admitted more symptoms than their partners. Marital relationship was often affected and in particular the effect on sexual life was negative. Relatives and friends could not fulfill a supportive function, and all couples expressed their need for professional support and counselling.

Freeman et al.(1983) in his study comparing infertile and fertile women concluded based on the Eysenck Personality Inventory and the Minnesota Multiphasic Personality Inventory (MMPI) that neurotic personality structure or psychopathology were not significantly greater in the treatment group than in the comparison groups.

Eisner et al 1963 found that infertile women showed more "emotional disturbance" on Rorschach protocols than fertile controls and that they were particularly more likely to give schizoid and sexual responses on their protocols

VII. PSYCHIATRIC MORBIDITY IN INFERTILE WOMEN

A comparative study between infertile and fertile women done by Noorbala et al. (2009) has showed that 44% of infertile and 28.7% of fertile women had a psychiatric disorder . The highest mean scores in

infertile women were found to be on the paranoid ideation, depression and interpersonal sensitivity scales, and lowest scores were found on the psychoticism and phobic anxiety scales. The interpersonal sensitivity, depression, phobic anxiety, paranoid ideas and psychoticism scales were significantly different between infertile and fertile women. Infertile women were at higher risk of developing psychiatric disorders if they were housewives rather than working women.

Sbaragli et al.(2004) in their study showed that psychiatric disorders was significantly higher among infertile subjects than among fertile controls especially for adjustment disorder with mixed anxiety and depressed mood (16% vs. 2%) and for binge eating disorder (8% vs. 0). They also highlight that a percentage of infertile patients have already developed a psychiatric disorder at the time of their first contact with a specialized fertility service.

Williams et al.(2007) in their recent review of medline literature published on mood disorders and fertility since 1980 had reported that in most studies women seeking treatment for infertility have an increased rate of depressive symptoms and possibly major depression (none showed mood elevations). Many, but not all, studies found that depressive symptoms may decrease the success rate of fertility treatment.

Upkong et al. (2006) in their study have shown the prevalence of psychiatric morbidity was 46.4% in the infertile women, 37.5% and 42.9% were cases of anxiety and depression respectively. Women suffering from infertility scored significantly higher on all outcome measures of psychopathology. The results also showed that the socio-demographic variables of the women with infertility contributed to the prediction of psychiatric morbidity. Increasing age, not having at least one child and poor support from spouse contributed to psychiatric morbidity. Low level of education, polygamous marriage, unemployment, lack of support from in-laws and duration of illness were not predictors of mental ill health.

Ashkani et al.(2006) have shown that psychiatric morbidity especially depression was significantly more among couples with infertility from 1-3 years duration compared to those with infertility of 1-year duration or less.

In a study by Coleman et al. (2006) on the reproductive health of women and depression the weighted prevalence of depression was 10.3%. Being depressed was most significantly associated with widowhood or divorce, infertility and severe menstrual pain.

Ozkan et al. (2006) showed that depression, anxiety and strength of psychological symptoms were significantly higher in the

infertile group. Depression was decreased as the rate of employment, economic status and education increased. Infertility, infertility treatment, and marriage duration were positively correlated with depression and the strength of psychological symptoms. Sexual relationships were negatively affected the longer the duration of infertility treatment lasted.

Chen et al. (2004) have shown that of a total of 112 participants attending an assisted reproductive technique clinic, 40.2% had a psychiatric disorder. The most common diagnosis was generalized anxiety disorder (23.2%), followed by major depressive disorder (17.0%), and dysthymic disorder (9.8%). Participants with a psychiatric morbidity did not differ from those without in terms of age, education, income, or years of infertility. Women with a history of previous assisted reproduction treatment did not differ from those without in depression or anxiety.

A study by Guz et al. (2003) on infertile women compared with healthy controls has revealed that psychiatric symptoms were not significantly different between the two groups. However, within the infertile group, depression and anxiety were more frequent in the women who received negative reactions from their husband, their husbands' families and social group. Depression, anxiety and self-esteem were improved in the infertile women as age and the duration of infertility

increased. In conclusion, our findings indicate that the reactions the infertile women are faced with, play an important role in the development of certain psychiatric symptoms.

Lok et al.(2002) in a study of infertile women before and after assisted reproduction methods found that before treatment, 33% of the participants scored above the GHQ cut-off, and 8% had a BDI score of 20 or above, signifying moderate to severe depression. Following failed treatment, 43% scored above GHQ cut-off, and 8% had BDI scores 20 or above. About 13% of the participants reported self-harm ideas. The severity of depression following a failed treatment was positively associated with the duration of infertility, but not with the post treatment BDI scores, age, education, and number of previous treatment episodes. Their results show that one third of the women who sought infertility treatment had an impaired psychological well-being. Following failed treatment, there was a further deterioration in mental health, and about 10% of the participants were moderately to severely depressed.

A comparative study by Domar et al.(2000) between infertile women and healthy controls has found that the infertile women had significantly higher depression scores and twice the prevalence of depression than the controls; women with a 2- to 3-year history of infertility had significantly higher depression scores compared with

women with infertility durations of < 1 year or > 6 years; women with an identified causative factor for their infertility had significantly higher depression scores than women with unexplained or undiagnosed infertility.

Shohaib et al. (2004) in a study on 100 infertile women, psychiatric morbidity was detected in 76% of the cases, while 32% psychiatric morbidity were found in the control. Amongst those having the psychiatric illness, depression was the most common illness 46.03%. Other common diagnosed categories were somatization disorder 20.63%, conversion disorder 15.87% and generalized anxiety disorder 9.52%. obsessive compulsive disorder (OCD) was found in 4.76%, whereas panic disorder and phobic disorder were found in 1.58%. A positive correlation between depression and the duration of infertility was found. Anxiety and related disorders were found in earlier age group whereas depression was found in later age group.

Anxiety disorders (eg, phobias, obsessive-compulsive disorder) and disorders with concomitant anxiety symptoms (eg, depression) are prevalent among infertile women, which is understandable because anxiety symptoms typically increase during times of stress, leading to exacerbations of pre-existing conditions, triggering of phobic reactions,

or an initial full-blown anxiety disorder in response to infertility diagnosis and treatment (Williams et al.2006).

Research has reported that 23% of infertile women met the criteria for generalized anxiety disorder, a higher rate than controls (Csemickzy et al.2000). Higher rates of adjustment disorder with anxiety have also been reported.

Elevated anxiety levels have also been reported in both infertile men and women, often leading to increased depression following repeated treatment cycles, particularly in women. The greatest levels of anxiety and distress have been reported to be in the first and last treatment cycles (Price et al.1988)

VIII. SEXUAL DYSFUNCTIONS IN INFERTILE WOMEN

There is a complex association between sexual behaviour and infertility. Sexual dysfunction can cause a delay in conception, but can also be the result of not conceiving. Sexual problems may be caused or exacerbated by the diagnosis, investigation, and management of infertility. Infertile women are likely to suffer from numerous psychosexual problems.

Studies have found that the topic of sexual dysfunction may never come to light if the responsibility for initiating a discussion is left to the patient (Nasbaum et al. 2000). According to other studies,

embarrassment is a key obstacle to patients' ability to broach the subject of sexual functioning with the physician (Goldstein et al. 2009)

Elstein et al. (1975) has described the infertile couples as potentially having abnormalities of sexual function. Such abnormalities may have a cause and effect relationship with infertility or they may be incidental to infertility or they may be presented in the disguise of infertility.

Study by Andrew et al. (1992) showed that infertility related stress had stronger negative impacts on sense of sexual identity , self-efficacy and affected life quality directly through its impacts on the marriage factors than did stress from other problems .

Keye et al.(1980) had shown in his study that the most common sexual problems among infertile couples are dyspareunia, progesterone-inhibited sexual desire, ''sex on demand,'' unrealistic sexual demands, a rigid or routinized approach to sex, poor body image, depression, guilt, ambivalence, and physical conditions causing infertility (eg, endometriosis) or resulting from treatments.

Reader et al. (1991) showed that sexual problem is a disorder only if the women perceives it to be so, with impaired sexual desire as the most common presentation. Prevalence studies have shown that the most common sexual problems in infertile females were anorgasmia (83.7%)

and decreased libido (80.7%) followed by dyspareunia and difficulty with sexual arousal 67.7% and 25% respectively and the prevalence of pain disorders such as vaginismus and dyspareunia were more in the women aged 20-24 years than the other groups (Tayebi et al. 2007) .

Another study by Jindal et al. (1989) had shown in an evaluation on 200 Indian infertile women that decreased frequency of intercourse and anorgasmia were the most common problems identified. These problems appear to be related to the feeling of being infertile rather than any social or personal factors, such as age, education, or income. The majority of the women welcomed this in-depth interview for sexual problems.

Audu et al. (2002) showed in a study on 97 Nigerian infertile women that, the prevalence of difficulty with sexual arousal and dyspareunia was 20.6% and 57.7% respectively.

Jain et al. (1990) have indicated in their study that amongst females dyspareunia 58%, decreased libido 28% and orgasmic failure 14% were most common problems. Various types of misconceptions were also observed in the infertile couples. Lack of sexual awareness and education formed an important part of observations. Psychosexual dysfunction and infertility was found to occur, in a large number of

couples, together in association. Most common cause for this problem seems to be ignorance and lack of sex education

Ponholzer et al. (2009) showed that the prevalence of pain disorders were more frequently in the women aged 20-39 years. Also, in their study, the prevalence of female sexual dysfunction increased with increasing age of women.

The QOL parameters in all categories were generally lower for infertile women than for those of the control group. Clinical sexual dysfunctions were not significantly more common among infertile than fertile women (Drosdzol et al. 2004).

Monga et al. (2005) showed that women in infertile couples reported poor marital adjustment and quality of life compared with controls. No statistically significant impact on sexual functioning in women was noted; however, the men in the infertile couples had lower total International Index of Erectile Function scores and intercourse satisfaction scores.

Nene et al. (2005) showed that sexual activity decreased as the number of childless years increased. However, the interspouse-relationship gets stronger and more supportive. The couples never revealed their sexual dysfunction to others. When the husband was

sexually dysfunctional, the couples preferred to label their situation as 'infertility' in order to avoid stigma.

Hurwitz et al. (1989) studied 40 couples with primary infertility. The "need to perform' over the fertile phase of the menstrual cycle was assessed. In 50% of women there was a statistically increased incidence of sexual dysfunction during this phase; loss of libido was the commonest dysfunction. No correlation was found between sexual dysfunction and the identified infertile sexual partner.

Khadhemi et al. (2008) in his study on sexual dysfunction in 100 infertile couples found that the Sexual Functioning Questionnaire score was within the normal range in all five domains in only 7% of women. The prevalence of female sexual dysfunction was highest and lowest in arousal-sensation (80.2%) and orgasm (22.8%) domains, respectively. Only 2% of male participants have had severe erectile dysfunction .

Hentschel et al. (2008) in his study compared sexual function between women of infertile couples (AR) and women seeking tubal ligation (TL). Women completed the Female Sexual Function Index, a questionnaire about sexual activity in the last 4 weeks. Scored data were collected on six different domains: desire, arousal, lubrication, orgasm, satisfaction, and discomfort/pain. The greatest positive correlation in the

TL group was between orgasm and sexual satisfaction (0.798), and in group AR between desire and arousal (0.627). Infertile women and fertile women who want to undergo surgical sterilization have similar sexual satisfaction scores.

Mimoun et al.(1993) after investigating into literature and from clinical experience, lined out in their study 4 types of interactions between sexuality and infertility: sexual causes to feminine (vaginismus, with and without heavy dyspareunia) or masculine (impotency, ejaculatory dysfunctions), infertility; influence of tests and of treatments for infertility on sexual life; influence of infertility on sexuality focusing on the various ambiguous feelings (of culpability, inferiority, aggressivity, passivity); and last, the psychological and sexual interactions with medical assisted procreation, reinforcing the sexual separation of man and woman if the body is considered a machine.

Shindel et al. (2008) studied one hundred twenty one couples presenting for the evaluation of infertility. Female partners completed the Female Sexual Function Index (FSFI) and a modified Self-Esteem and Relationship (SEAR) Questionnaire. Male partners completed the SEAR and the International Index of Erectile Function (IIEF). Both partners completed the Center for Epidemiological Studies Depression Scale (CES-D) for depression and the Short Form-36 (SF-36) for general

quality of life. Demographic, fertility, and comorbidity information was recorded. On CES-D, 19% of women had moderate and 13% had severe depression. Women reported significantly worse SF-36 Mental Health subscale scores (mean = 47.8, $P < 0.05$) compared with normative values. The mean total FSFI score was 28 +/- 7 (maximum score of 36), with 26% of the women scoring below 26.55, an established cut-off for high risk of female sexual dysfunction. FSFI scores had a modest positive correlation with male IIEF scores ($r = 0.37$, $P < 0.01$), and there was a trend toward a negative correlation with female CES-D scores ($r = -0.16$, $P < 0.06$). These relationships were maintained on multivariate analysis. Depression and sexual dysfunction are prevalent in female partners of infertile couples. Female sexual function is positively correlated with male partner sexual function in this population.

METHODOLOGY

AIM OF THE STUDY

To assess the prevalence of psychiatric morbidity and sexual dysfunctions in women with infertility, to correlate them with physical variables and to know their clinical relevance.

OBJECTIVES

1) To assess the prevalence of psychiatric disorders among infertile women.
2) To determine the association between psychiatric morbidity and quality of marital life.
3) To determine the association between psychiatric morbidity and psychosocial factors.
4) To assess the prevalence of sexual dysfunctions in women with infertility.

To satisfy these aims and objectives the research design was planned to be based on hypothesis testing design with the use of validated structured tools and statistics.

The following hypotheses were formulated

1) Women with infertility are more prone for psychiatric disorders.
2) Depression and anxiety disorders are common psychiatric illness in infertile women.

3) Longer the duration of infertility lower the quality of marital life.
4) Longer the duration of infertility lower the self esteem.
5) Psychiatric morbidity is more common in infertile women with family h/o mental illness.
6) Sexual dysfunctions are more prevalent in women with infertility.
7) Sexual dysfunctions are more when the quality of marital life is poor.
8) Dyspareunia is the commonest type of sexual dysfunction in infertile women.

The sample was chosen from infertile women attending Obstetics and Gynaecology OP. Forty women meeting the WHO criteria for infertility who satisfied the inclusion and exclusion criteria were chosen for the study.

INCLUSION CRITERIA

1) Couples who were unable to conceive for 2 yrs without the use of any contraceptives.(as defined by WHO)
2) Infertile women in the age group 20-40 yrs
3) Women attending infertility op who were investigated and found to be normal.(showing no gynaecological pathology)
4) Couples who are willing and cooperative and who consented to participate were included in the study.

EXCLUSION CRITERIA

1) Women with past h/o psychiatric illness or mental retardation.

2) Women with medical or surgical causes of infertility.

3) Women who are on psychiatric treatment at present.

OPERATIONAL DESIGN

The study was conducted in the infertility outpatient department of the department of obstetrics and gynaecology in the period between January 2008 and September 2008. Forty patients who satisfied the criteria for infertility were screened by the Gynaecologist and then by the postgraduate for inclusion in the study and discussed with senior psychiatrist for further evaluation.

Each patient and her husband were explained about the nature of study and motivated to participate in the detailed testing after getting informed consent. The patients were interviewed before any medications.

Details of socio demographic profile were collected followed by a thorough examination of physical status including a detailed neurological examination. Mental status examination was done. Blood, urine and biochemical screening tests were done to rule out organicity.

The patients were evaluated using standardized tools on an op basis on 3 sessions on successive days. All the patients were cooperative.

The results of the study were analysed by using both qualitative and quantitative data. Statistical techniques include both analysis such as measures of central tendencies and distribution and inferential methods including parametric and nonparametric methods.

The following tools were used

1) Proforma

2) Mini International Neuropsychiatric Interview (MINI) (Lecrubier and Sheehan , 1997)

3) Socio-economic status scale (S.E.Gupta ,B.P.Sethi 1978, Kuppusamy 1962)

4) Hospital Anxiety Depression Scale (HADS) (Zigmond and Snaith, 1983)

5) Marital Quality Scale (MQS) (Shah , 1995)

6) Female Sexual Function Index (FSFI) (Rosen et al. 2000)

7) Rosenberg Self Esteem Scale (RSE) (Rosenberg, 1965)

8) Eysenck personality inventory (EPI) (Eysenck and Eysenck, 1964)

STATISTICAL DESIGN

Statistical design was formulated using the data collected as above. For each of the scales and socio demographic variables, the central values (arithmetic mean) and dispersion tendencies (standard deviation)

were calculated. In comparison of the data for categorical variables chi square and for numerical variable student t test were used. For knowing the significance of psychopathological attributes correlation matrix were used.

1) PROFORMA: compiled for recording socio demographic variables, duration of infertility , age of marriage, and family h/o psychiatric illness.

2) Mini International Neuropsychiatric Interview (Lecrubier and Sheehan, 1992)

The M.I.N.I is the most widely used psychiatric structured diagnostic interview instrument in the world. The M.I.N.I has been translated into 43 languages and is used by mental health professionals and health organisations in more than 100 countries. The M.I.N.I is a short structured diagnostic interview that was developed by psychiatrists and clinicians in the United States and Europe for DSM-IV and ICD -10 psychiatric disorders. It includes modules for 23 disorders and features questions on rule-outs, disorder subtyping and chronology. It also features number of algorithms to handle hierarchial rule-outs in the event that the patient had more than one disorder at a time. With an administration time of approximately 15 minutes the M.I.N.I is the structured interview of choice for psychiatric evaluation and outcome

tracking in clinical psychopharmacological trials and epidemiological studies. The M.I.N.I has been validated against the much longer Structured Clinical Interview for DSM diagnosis (SCID-P) in English and French and against the Composite International Diagnostic Intervieew for ICD (CIDI) in English, French and Arabic. It has also been validated against expert opinion in a large sample in four European countries. (France, United Kingdom, Italy and Spain). In India, Chandrasekaran et al.(2005), in a study on attempted suicide used the M.I.N.I scale as also by Venkatasubramanian et al.(2007), in their study on relationship between Insulin Growth Factor and Schizophrenia.

3) Socioeconomic Status Scale: (S.E.Gupta, B.P.Sethi 1978; Kuppusamy 1962)

The scale consists of scores on 3 variables namely education, occupation and income on the basis of a 10 point scale. It consists of 10 categories of score ranging from the highest to the lowest. The categories are being grouped with 5 social classes namely very high, high, upper middle , lower middle and very low. The 10 point scale consists of 200 scores with equal class intervals. The inter-rater reliability is found to be very high (R=0.9). This scale incorporates guidelines to score children, dependent persons as well as nondependent persons, married and unmarried subjects. The general principle applied that the

initial 40 scores deals remarkable lower 8 position. The next 60 scores related to average to slightly above average position and scores between 100-200 pertains to the higher positions.

4) Hospital Anxiety Depression Scale: *(*Zigmond and Snaith, 1983)

The HADS comprises statements which the patient rates based on their experience over the past week. The 14 statements are relevant to either generalized anxiety (7 Statements) or 'depression' (again 7) the latter being largely (but not entirely) composed of reflections of the state of anhedonia (inability to enjoy oneself or take pleasure in everyday things enjoyed normally)

Even – numbered questions relate to depression and odd-numbered questions relate to anxiety. Each question has 4 possible responses. Responses are scored on a scale form 3 to 0. The maximum score is therefore 21 for depression and 21 for anxiety. A Score of 11 or higher indicates the probable presence of the mood disorder with a score of 8 to 10 being just suggestive of the presence of the respective State. The two subscales, anxiety and depression, have been found to be independent measures in its current form the HADS is now divided into four ranges: normal (0-7), mild (8-10), moderate (11-15) and severe (16-21).

5) Marital Quality Scale (Shah, 1995):

This is a multidimensional scale that measures marital quality. It consists of 50 items in statement form with a four point rating scale of 'usually', 'sometimes', 'rarely' and 'never', indicating the frequency of occurrence of various phenomenon in the marriage. The scale gives total score on twelve separate dimensions. It has both a male and a female form. The twelve dimensions assessed are – understanding, rejection, satisfaction, affection, despair, decision making, discontent, dissolution potential, dominance , self disclosure , trust and role functioning. Higher scores are indicative of a poorer quality of marital life. The scale has an internal consistency of 0.91 and a test-retest reliability 0.83.

6) Female Sexual Function Index: (Rosen et al. 2000)

The FSFI, a 19-item questionnaire, has been developed as a brief, multidimensional self-report instrument for assessing the key dimensions of sexual function in women. It is psychometrically sound, easy to administer, and has demonstrated ability to discriminate between clinical and non clinical populations. The questionnaire was designed and validated for assessment of female sexual function and quality of life in clinical trials or epidemiological studies The FSFI was developed in a series of stages, including panel selection of the initial items, pre-testing with healthy volunteers followed by linguistic and conceptual validation

with a panel of expert consultants. Based on factor analytic methods, five factors or domains of sexual function were identified:

(a) desire and subjective arousal,

(b) lubrication

(c) orgasm

(d) satisfaction

(e) pain/discomfort. The factor loadings of the individual items fit the expected pattern, supporting the factorial validity of this instrument.

7) Rosenberg self esteem scale: (Rosenberg ,1965)

The Rosenberg Self-Esteem Scale (RSE; Rosenberg 1965) is an attempt to achieve a unidimensional measure of global self-esteem. It was designed to be a Gutman scale, which means that the RSE items were to represent a continuum of self-worth statements ranging from statements that are endorsed even by individuals with low self-esteem to statements that are endorsed only by persons with high self-esteem. Rosenberg (1965) scored his 10- question scale that was presented with four response choices from strongly agree, agree , disagree to strongly disagree. While designed as a Guttman scale, the SES is now commonly scored as a Likert scale. The scale generally has high reliability: test-retest correlations are typically in the range of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to

.88. Studies have demonstrated both a unidimensional and a two-factor (self-confidence and self-deprecation) structure to the scale. The scale ranges from 0-30, with 30 indicating the highest score possible.

7) Eysenck personality inventory: (Eysenck and Eysenck, 1964)

It is a personality questionnaire developed by Eysenck and Eysenck to measure 2 independent dimensions of personality neuroticism-stability and extraversion-introversion dimension. It consists of 57 statements to which the subject responds by answering yes or no. A lie score is also incorporated to assess the desirability response set. 24 questions each assess neuroticism and extraversion dimension and 9 questions assess lie score. The Tamil adaptation of the inventory Varghese 1969 is employed because the N scores of this version was found to effectively differentiate neurotic from normal. The test-retest reliability correlations for the N scale of the inventory was high (0.71) [Hossain et al 1974]. Norms obtained by Varghese have been utilised for this study.

LIMITATIONS

1) Major limitation of the study is the fact that it is a cross-sectional analysis involving a small sample size.

2) Cosecutive follow-up of the infertile women periodically for a longer period could have enabled a more detailed understanding of the illness and course and outcome.

TABLE 1

TABLE SHOWING SOCIO-DEMOGRAPHIC VARIABLES IN INFERTILE WOMEN

S NO	VARIABLES		INFERTILE WOMEN (N=40)		STATISTICAL DESIGN
			n	%	
1	AGE	< 30	32	80%	MEAN =27.48 SD= 4.26 RANGE 21-36
		>30	8	20%	
2	EDUCATION	UNEDUCATED	4	10%	
		PRIMARY	6	15%	
		SECONDARY	20	75%	
		HIGHER SECONDARY	3	7.5%	
		DEGREE	7	17.5%	
3	CONSANGUINITY	PRESENT	11	27.5%	
		ABSENT	29	72.5%	
4	FAMILY TYPE	NUCLEAR	15	37.5%	
		JOINT	25	62.5%	
5	SOCIOECONOMIC STATUS	MIDDLE	24	60%	
		LOWER	16	40%	

TABLE 1 shows that majority of the women with infertility in the sample were below 30 yrs accounting for 80%. Mean age of the sample was 27.48, Standard Deviation 4.26 and Range between 21-36 yrs.

Majority of women with infertility studied upto secondary school and accounted for 75%.

Out of the 40 women 11(27.5%) had consanguinous marriage. 25(62.5%) lived in joint family systems.

Majority of the families belonged to middle socio-economic status accounting for 60%.

TABLE - 2

TABLE SHOWING DESCRIPTION OF PERSONALITY, DURATION OF INFERTILITY AND FAMILY H/O PSYCHIATRIC ILLNESS AMONG INFERTILE WOMEN.

S NO	VARIABLES		INFERTILE WOMEN (N=40)		STATISTICAL ANALYSIS
			n	%	
1	FAMILY H/O PSYHIATRIC ILLNESS	POSITIVE NEGATIVE	4 36	10 90	
2	DURATION OF INFERTILITY	< 4 >5	21 19	52.5 47.5	
3	PERSONALITY PROFILE	INTROVERSION AMBIVERT EXTRAVERSION	1 38 1	2.5 95 2.5	MEAN=10.73 SD= 2.38 RANGE 7-18
		STABLE TENDENCY TO BE NEUROTIC NEUROTIC	9 25 6	22.5 62.5 15	MEAN=8.18 SD= 4.12 RANGE 2-17

TABLE 2 Shows description of personality, duration of infertility and family h/o psychiatric illness. 4(10%) of the total sample had a positive family h/o psychiatric illness.

Nearly half (47.5%) had infertility duration for more than 5 years. Majority in the study population scored in ambivert (95%) and tendency to neuroticism (62.5%). 15% were found to be neurotic and 2.5% scored in introversion dimension.

TABLE - 3

TABLE SHOWS PSYCHIATRIC MORBIDITY IN INFERTILE WOMEN

VARIABLE		INFERTILE WOMEN (N=40)	
		n	%
PSYCHIATRIC ILLNESS	PRESENT	11	27.5%
	ABSENT	29	72.5%

Table 3 shows 11(27.5%) had psychiatric illness and 29 (72.5%) had no psychiatric illness based on Mini International Neuropsychiatric Interview.

TABLE 4

TABLE SHOWING TYPE OF PSYCHIATRIC ILLNESS

SNO	TYPE OF PSYCHIATRIC ILLNESS	INFERTILE WOMEN (N=40)	
		n	%
1	NIL	29	72.5%
2	Generalised Anxiety Disorder	3	7.5%
3	Major Depressive Disorder	6	15%
4	Dysthymic Disorder	2	5%

Table 4 shows that majority of the patients diagnosed to have psychiatric illness suffered from major depressive disorder (15%). 2 patients were found to have dysthymic disorder and 3 patients had generalised anxiety disorder.

TABLE - 5

TABLE SHOWS PREVALENCE OF PSYCHOLOGICAL SYMPTOMS IN INFERTILE WOMEN

VARIABLE		INFERTILE WOMEN (N=40)		STATISTICAL ANALYSIS
		n	%	
HADS ANXIETY SYMPTOMS	<10	37	92.5%	MEAN= 4.23 SD = 3.7 RANGE 0-16
	>11	3	7.5%	
HADS DEPRESSIVE SYMPTOMS	<10	34	85%	MEAN= 6.23 SD = 5.1 RANGE 0-17
	>11	6	15%	

Table 5 shows that based on HADS Anxiety scores 3(7.5%) had significant high scores , scoring more than 11.(Mean 4.23, SD 3.7, Range 0-16).On Depression scales 6(15%) had significant high scores (Mean 6.23, SD 5.1, Range 0-17).

TABLE - 6

TABLE SHOWS SEXUAL DYSFUNCTIONS AND SELF ESTEEM IN INFERTILE WOMEN

S NO	VARIABLE		INFERTILE WOMEN (N=40)		STATISTICAL ANALYSIS
			n	%	
1	FSFI DESIRE	<4.28 >4.28	15 25	37.5 62.5	MEAN=4.62 SD= 1.45 RANGE 0-6
2	FSFI AROUSAL	<5.08 >5.08	23 17	57.5 42.5	MEAN=4.76 SD= 1.32 RANGE 0-6
3	FSFI LUBRICATION	<5.45 >5.46	24 16	60 40	MEAN=4.79 SD= 1.37 RANGE 0-6
4	FSFI ORGASM	<5.05 >5.06	25 15	62.5 37.5	MEAN=4.07 SD= 1.81 RANGE 0-6
5	FSFI SATISFACTION	<5.04 >5.05	24 16	60 40	MEAN=4.67 SD= 1.34 RANGE 0-6
6	FSFI PAIN	<5.51 >5.52	12 28	30 70	MEAN=5.11 SD = 1.50 RANGE 0-6
7	FSFI TOTAL	<26.55 >26.55	22 18	55 45	
8	RSES	<15 >15	5 35	12.5 87.5	MEAN=21.3 SD = 5.73 RANGE 11-30

Table 7 shows that 22(55%) of the infertile women had sexual dysfunctions and the most common sexual problem among the women was anorgasmia which was reported by 25 (62.5%) of the women. 24(60%) women reported lubrication problems and dissatisfaction with their sexual life and 23(57.5%) had difficulty in arousal. 12(30%) reported dyspareunia.

Data on self esteem reveal that 5(12.5%) of the infertile women had low self esteem.

TABLE - 7

TABLE SHOWS COMPARISON OF SOCIO DEMOGRAPHIC VARIABLES, DURATION ON INFERTILITY , FAMILY H/O PSYCHIATRIC ILLNESS AMONG WOMEN WITH AND WITHOUT PSYCHIATRIC ILLNESS

SNO	VARIABLES		PSYCHIATRIC ILLNESS ABSENT (N=29)	PSYCHIATRIC ILLNESS PRESENT (N=11)	't'
1	AGE	<30 >30	23 6	9 2	0.031
2	EDUCATION	ILLITERATE 1-5 6-10 11-12 >13	2 5 13 2 7	2 1 7 1 0	4.64
3	CONSANGUINITY	PRESENT ABSENT	7 22	4 7	0.598
4	FAMILY TYPE	NUCLEAR JOINT	8 21	7 4	4.42*
5	SOCIOECONOMIC STATUS	MIDDLE LOWER	16 13	8 3	1.024
6	DURATION OF INFERTILITY	< 4 >5	20 9	1 10	11.465**
7	FAMILY H/O PSYCHIATRIC ILLNESS	PRESENT ABSENT	3 26	1 10	0.014

*p<0.05 **p<0.01

Table 7 shows that regarding age, 9(81.8%) patients diagnosed to have psychiatric illness were below 30 years of age and 2(18.2%) were above 31 years. Among those without psychiatric illness 23(79.3%) were below the age of 30. The difference was statistically not significant.

Regarding educational status among infertile women with psychiatric illness 7(63.6%) had secondary education and 2(18.2%) were illiterates.1(9%) each had primary education and higher education. Among infertile women without psychiatric illness the distribution of educational status was the same and the difference between the groups was not significant.

Regarding consanguinity, majority of the infertile women with psychiatric illness, that is 7(63.6%) had no consanguinous marriage and 4(36.4%) had h/o consanguinous marriage. The difference between the groups was not significant.

Data on family type has shown that 7(63.6%) lived in nuclear family and 4(36.4%) lived in joint family systems and when compared to infertile women without psychiatric illness the difference was statistically significant suggesting infertile women living in a nuclear family system with poor social support had significant risk of psychiatric morbidity.

The difference in socio economic status between the two groups was not statistically significant.

Regarding duration of infertility, among infertile women with psychiatric morbidity 10(91%) had duration of more than 5 yrs whereas in those without psychiatric morbidity 20(69%) had infertility duration less than 4 years. The difference shows statistically higher significance.

Among infertile women with psychiatric illness 10(90.9%) did not have any family h/o psychiatric illness where as in women without psychiatric morbidity 3(10.3%) had a family h/o psychiatric illness. This difference was not statistically significant.

TABLE 8

TABLE SHOWS COMPARISON OF AGE, DURATION, PSYCHOLOGICAL SYMPTOMS, SELF ESTEEM, SEXUAL DYSFUNCTIONS WITH RESPECT TO PSYCHIATRIC MORBIDITY AMONG INFERTILE WOMEN.

S NO	VARIABLE	PSYCHIATRIC ILLNESS ABSENT		PSYCHIATRIC ILLNESS PRESENT		't'
		MEAN	SD	MEAN	SD	
1	AGE	26.86	4.66	29.1	2.43	-1.967
2	DURATION OF INFERTILITY	4.38	2.85	9.18	4.19	-4.167**
3	HADS A	3	1.89	7.45	5.24	-2.752*
4	HADS D	3.83	2.65	12.55	4.59	-5.936**
5	RSES	23.03	5.55	16.73	3.20	4.469**
6	MQS	75.93	31.07	31.09	26.77	-0.486
7	FSFI DESIRE	4.84	1.55	4.04	0.97	1.604
8	FSFI AROUSAL	4.97	1.40	4.20	0.88	1.680
9	FSFI LUBRICATION	4.91	1.49	4.28	0.89	1.312
10	FSFI ORGASM	4.34	1.90	3.35	1.39	1.586
11	FSFI SATISFACTION	4.86	1.45	4.17	0.85	1.464
12	FSFI PAIN	5.10	1.60	5.13	1.21	-0.057

Df =38 *p<0.05 **p<0.01

Table 8 shows age of infertile women with psychiatric morbidity has been higher (mean 29.1+2.43) compared to age of infertile women

without psychiatric illness (Mean 26.86+4.66). But the difference is not significant.

Among infertile women with psychiatric morbidity the duration of infertility was longer (Mean 9.18+4.19) compared to those without psychiatric illness (Mean 4.38+2.85). The difference showed statistical significance suggesting longer the duration of infertility greater the risk of developing psychiatric illness.

Regarding psychological symptoms both Anxiety and Depression scores have been higher in those with Psychiatric illness and further statistical analysis shows Depression scores have been higher compared to Anxiety scores.

Regarding self esteem scoring women with psychiatric morbidity have lower score (mean 16.73) compared to those without psychiatric morbidity (mean 23.03) and the difference has been statistically significant. This finding suggests women with low self esteem have more psychiatric morbidity.

Quality of marital life and sexual dysfunctions in both groups do not show significant difference.

TABLE - 9

TABLE SHOWS CORRELATION OF AGE, DURATION, PSYCHOLOGICAL SYMPTOMS, SELF ESTEEM, MARITAL QUALITY WITH SEXUAL DYSFUNCTION

S NO	VARIABLE	FSFI D	FSFI A	FSFI L	FSFI O	FSFI S	FSFI P
1	AGE	0.134	0.101	0.092	0.031	0.068	0.321*
2	DURATION OF INFERTILITY	-0.089	-0.122	-0.123	-0.154	-0.102	-0.194
3	HADS A	-0.182	-0.199	-0.172	-0.278	-0.216	-0.058
4	HADS D	-0.429**	-0.376*	-0.348*	-0.379*	-0.343*	0.053
5	RSES	0.402**	0.435**	0.356*	0.372*	0.378*	0.131
6	MQS	-0.438**	-0.374*	-0.431**	-0.463**	-0.354*	0.024

*p<0.05 **p<0.01

Table 9 shows that the phases of sexual functioning do not correlate with age except for pain which was positively correlated with advancement in age.

All the scores in sexual functioning have been negatively correlated with duration of infertility but do not show any statistical significance.

Depressive symptoms based on HADS have been negatively correlated with every phase of sexual functioning in infertile women. Further all the phases show statistical significance with increase in

depressive scores and particularly significance has been high with desire phase.

Regarding self esteem all phases of sexual functioning has been positively correlated and shows statistical significance, particularly our study shows lower the self esteem lower the desire and arousal in infertile women.

Quality of marital life has negatively correlated with all phases of sexual functions and this is statistically significant showing that sexual dysfunction is high in couples with poor quality of marital life.

TABLE -10

TABLE SHOWING CORRELATION OF AGE, DURATION WITH PSYCHOLOGICAL SYMPTOMS, SELF ESTEEM AND MARITAL QUALITY

S NO	VARIABLE	HADS A	HADS D	RSES	MQS
1	AGE	0.262	0.283	-0.288	-0.140
2	DURATION OF INFERTILITY	0.338*	0.495**	-0.423**	-0.056

*p<0.05 **p<0.01

Table 10 shows that on analysis of age, it does not show significant correlation with psychological symptoms or self esteem or quality of marital life.

On comparison of duration of infertility with psychological symptoms both anxiety and depression scores have been higher as duration advances. Self esteem shows significant negative correlation with duration of infertility suggesting longer the duration of infertility lower the self esteem.

Quality of marital life has not showed significant correlation with duration of infertility.

TABLE - 11

COMPARISON OF SOCIO-DEMOGRAPHIC VARIABLES, PSYCHIATRIC MORBIDITY AND PERSONALITY PROFILE IN RELATION TO FAMILY H/0 OF PSYCHIATRIC ILLNESS AMONG INFERTILE WOMEN

SNO	VARIABLES		FAMILY H/O PSYCHIATRIC ILLNESS PRESENT N=4	FAMILY H/O PSYCHIATRIC ILLNESS ABSENT N=36	't'
1	AGE	<30 >31	3 1	29 7	0.69
2	EDUCATION	ILLITERATE 1-5 6-10 11-12 >13	0 2 1 0 1	4 4 19 3 6	5.106
3	CONSANGUINITY	PRESENT ABSENT	1 3	10 26	0.014
4	FAMILY TYPE	NUCLEAR JOINT	1 3	14 22	0.296
5	SOCIOECONOMIC STATUS	MIDDLE LOWER	2 2	22 14	0.185
6	MINI	NIL PRESENT	3 1	26 10	0.14
7	EPI	INTROVERSION AMBIVERT EXTRAVERSION	0 3 1	1 35 0	9.29**
		STABILITY TENDENCY TO BE NEUROTIC NEUROTICISM	0 2 2	9 23 4	4.741

*p<0.05 **p<0.01

Table 11 shows age, educational status, consanguinity, family type and socioeconomic status do not show significant difference in relation to family h/o psychiatric illness among infertile women.

The personality profiles on introversion-extraversion dimension shows significant difference between infertile women with and without a family h/o psychiatric illness. The difference in neuroticism dimension was statistically not significant. 2(5%) scored in neuroticism in the group with family h/o psychiatric illness and 4(10%) scored in neuroticism in those without a family h/o psychiatric illness.

TABLE - 12

TABLE SHOWS COMPARISON OF PSYCHOLOGICAL SYMPTOMS , SELF ESTEEM , MARITAL QUALITY , SEXUAL DYSFUNCTION WITH FAMILY H/O PSYCHIATRIC ILLNESS

SNO	VARIABLE	FAMILY H/O PSYCHIATRIC ILLNESS PRESENT		FAMILY H/O PSYCHIATRIC ILLNESS ABSENT		't'
		MEAN	SD	MEAN	SD	
1	HADS A	5.00	0.816	4.14	3.885	0.437
2	HADS D	8.25	5.56	6	5.08	0.774
3	RSES	19.25	9.29	21.53	5.36	-0.749
4	MQS	111	45.48	73.61	25.72	2.552**
5	FSFI D	3.6	0.98	4.73	1.45	-1.512
6	FSFI A	3.75	0.71	4.87	1.33	-1.64
7	FSFI L	3.75	0.90	4.85	1.38	-1.55
8	FSFI O	2.6	1.15	4.23	1.81	-1.75
9	FSFI S	3.92	0.56	4.75	1.38	-1.18
10	FSFI P	5.4	1.2	5.07	1.53	0.413

*P<0.05 **P<0.01

Table 12 shows that infertile women with family h/o psychiatric illness had poor quality of marital life (mean=111+45.48) compared to those without family h/o psychiatric illness (mean 73.61+25.72). The

difference has been statistically significant suggesting family h/o psychiatric illness reduces quality of marital life.

On analysis of other variables including psychological symptoms, self esteem and sexual functioning there were no significant differences.

DISCUSSION

Aim of the study is to assess prevalence of psychiatric morbidity and sexual dysfunction in women with infertility, to correlate them with physical variables and to know their clinical relevance. Previous studies have documented that there has been higher rate of psychiatric morbidity in infertile women, but they were inconclusive and contradictory regarding sexual dysfunctions and pattern of psychological morbidity. Hence this study was planned to be based on hypothesis verification design. The study was done in infertility clinic, Department of Obstetrics and Gynaecology. Forty women who met the WHO diagnostic criteria for infertility were chosen on the basis of strict inclusion criteria.

Prevalence of psychiatric morbidity in infertile women was 27.5% which has been found to be lesser than the rates compared to Noorbala et al.(2009) who showed 44%, Upkong et al.(2006) who showed 46.4%, Chen et al.(2004) and Shohaib et al.(2004) who have showed a prevalence rate of 40.2% and76% respectively.

In this study, regarding type of psychiatric illness major depressive disorder accounting for 15% has been the commonest psychiatric disorder, followed by generalised anxiety disorder and dysthymia accounting for 7.5% and 5% respectively. The trend showing

depression as the commonest psychiatric illness in infertile women has been reflected in studies by Upkong et al. (2006) , Ashkani et al.(2006) , Coleman et al.(2006) , Domar et al.(2004) and Shohaib et al.(2004) who reported a range of 10-42.9%. Thus our findings suggest that infertile women have significant high risk of developing depression (72.7% accounted together by major depressive disorder and dysthymia) compared to any other psychiatric illness. These findings are in contrast to studies by Chen et al.(2004) who reported generalised anxiety disorder(23.2%) as the commonest psychiatric illness in infertile women followed by major depressive disorder(17%) and dysthymia(9.8%). Anxiety disorder was the commonest finding in other studies by Williams et al. (2006) and Csemickzy et al.(2000). Lesser prevalent psychiatric illness such as somatization disorder , conversion disorder ,obsessive compulsive disorder, panic disorder, phobias were not found in any of the infertile women in our study.

Infertile women are at risk for anxiety and depression compared to fertile women and there is a need for considering emotional factors for effective management. Many studies found that, depressive symptoms or anxiety symptoms may decrease the success rate of infertility treatment. In our study depressive and anxiety scores based on HADS has been uniformly higher in all infertile women. This finding is

in concordance with previous studies by Noorbala et al. (2009), William et al.(2007), Ozkan et al.(2006), Domar et al.(2004) and Price et al.(1988).

In our study, both depressive and anxiety symptoms negatively correlated with sexual functioning. Depressive symptoms causes sexual dysfunction in all phases and particularly reduces sexual desire in infertile women and this association has shown statistical significance. These findings are similar to those reported by Shindel et al. (2008) that depression and sexual dysfunctions are positively correlated in infertile women.

Regarding sexual dysfunction, our study findings reveal that 37.5% of women had sexual dysfunction. Regarding prevalence of sexual dysfunction in various phases, in our study 37.5% had a lack of sexual desire, 57.5% had arousal disorders, 60% had problems in lubrication , 67.5% had anorgasmia , 60% had no satisfaction and 30% had dyspareunia. Studies have found that sexual dysfunction has not been properly evaluated and our study findings reveal relatively higher dysfunction in relation to all the sexual stages. Such problems which may have a cause and effect relationship with infertility or incidental to

infertility or presented in the disguise of infertility and if not properly evaluated may hinder treatment of infertility.

Our study findings suggest dysfunction pertaining to orgasm phase (62.5%) as the commonest sexual problem followed by dysfunction in lubrication phase, lack of sexual satisfaction and disturbances in arousal. The prevalence of lack of desire in our study has been lower accounting for 37.5% of infertile women and dyspareunia (30%) is the least common.

Reader et al. (1991) had found that infertile women most commonly presented with anorgasmia. Tayebi et al. (2007) also reported that anorgasmia is the most common sexual dysfunction in infertile women followed by reduced libido, dyspareunia and difficulty in sexual arousal. Further they had found that vaginismus and dyspareunia were common in woman aged 20-24 years than in other groups.

Audu et al. (2002), Jain et al. (1990) and Ponholzer et al.(2005) have found dyspareunia as the commonest sexual dysfunction and Hurwitz et al.(1989) reported loss of libido as the commonest sexual dysfunction. The prevalence of sexual dysfunction in our study has thus showed differences from previous studies reported by Jindal et al. (1989), Audu et al. (2002), Jain et al.(1990), Ponholzer et al. (2005) and Khadhemi et al. (2008).

On comparison of prevalence of sexual dysfunction pertaining to presence or absence of psychiatric illness in infertile women, both groups show relatively equal scores and the difference was statistically not significant. On correlation of sexual dysfunction with age there has been significant positive correlation of dyspareunia with advancing age. This finding is in contrast to Reader et al who showed that dyspareunia is commoner in relatively younger women between 20-24 yrs of age. Our finding is in accordance with Ponholzer et al. (2005) who showed prevalence of pain disorders increased with increasing age in women.

On analysis of depressive symptoms, there has been negative correlation with all phases of sexual functioning except pain and particularly depression significantly reduces libido. Regarding self esteem, lower self esteem has been positively correlated with dysfunction in all phases of sexual life and particularly causes significant impairment in sexual desire and sexual arousal.

Similarly poor quality of marital life also significantly correlated with high degree of sexual dysfunction and especially the trend is seen in problems with desire, orgasm and sexual satisfaction. These findings are in accordance with Monga et al. (2005) who showed that

infertile women with poor quality of marital life and low self esteem had more sexual dysfunctions.

On analysis of duration of infertility and psychiatric morbidity, our study findings reveal that as duration of infertility increases there is significant risk of psychiatric morbidity. Further duration significantly increases anxiety and depressive symptomatology and significantly decreases self esteem in infertile women. This finding is in accordance with Ashkani et al. (2006) and Shohaib et al. (2004) who showed that depression was significantly more in women with longer duration of infertility than shorter duration, but Guz et al. (2003) has reported that depression , anxiety and self esteem improved in infertile women as duration of infertility increases.

Duration of infertility do not influence sexual functioning and quality of marital life in our study. These findings are in contrast with Nene et al. (2005) who showed that sexual activity decreased as the number of childless years increased.

Regarding family history of psychiatric illness on comparison of infertile women with and without psychiatric illness, there has been no significant difference suggesting family history do not influence development of psychiatric morbidity in infertile women.

The personality profile of infertile women in our study showed that infertile women with a family history of psychiatric illness scored significantly higher on the ambivert than other dimension. In a study done by Thara et al. (1986) women in the infertile group had high scores on the neuroticism scale than their controls.

Regarding socio demographic variables and its correlation to psychiatric morbidity the results obtained in our study showed few important observations. Among infertile women with psychiatric morbidity, majority were below the age of 30(81.8%) compared to women more than 30 yrs of age (18.2%), but the difference was statistically not significant. Educational status and consanguinity were not significantly different among infertile women with and without psychiatric morbidity. In our study it has been found that infertile women living in nuclear families (63.6%) had significant risk of developing a psychiatric illness compared to those in joint family systems. There has been more prevalence of psychiatric morbidity in women belonging to middle socio economic status (72.7%). But when compared to women from low socio economic status the difference was statistically not significant. Further government hospitals which cater to large number of people from middle socio economic status and the relatively small sample size in our study the results cannot be generalised.

From this study it has been found that psychiatric morbidity is higher in infertile women. Major depressive disorder is the commonest psychiatric illness irrespective of duration of infertility. Depressive symptomatology are common than anxiety symptoms and positively correlated with sexual dysfunction.

Socio demographic variables do not influence psychiatric morbidity. Longer duration of infertility reduces self esteem but not quality of martital life.

Sexual dysfunctions are more prevalent across all phases and impair quality of marital life. Family history of a psychiatric illness does not influence psychiatric morbidity and duration of infertility has no correlation with sexual dysfunctions.

CONCLUSION

The study findings reveal with respect to the hypothesis that

1) Women with infertility have high prevalence of psychiatric disorders.
2) Depression and Anxiety disorders are common psychiatric illness in infertile women.
3) Longer duration of infertility does not lower quality of marital life.
4) Longer the duration of infertility lower the self esteem.
5) Family h/o psychiatric illness does not influence development of psychiatric illness in infertile women.
6) Sexual dysfunctions are more prevalent in women with infertility.
7) Sexual dysfunctions are higher when the quality of marital life is lower.
8) Dysfunctions in orgasm phase is common than dyspareunia in infertile women.

Based on our study, infertile women have a high risk of psychiatric disorders and there has been higher prevalence of sexual dysfunction. Early recognition and adequate intervention of emotional disturbance will have positive impact in infertility treatment. Further

studies to characterize pattern of psychiatric morbidity and their impact on infertility treatment and longitudinal studies to observe outcome are necessary.

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APPENDIX – 1

PROFORMA

S NO DATE

NAME

ADDRESS RESIDENCE:RURAL/URBAN

AGE

EDUCATION

OCCUPATION OF SELF: OCCUPATION OF SPOUSE:

INCOME OF SELF: INCOME OF SPOUSE:

FAMILY TYPE: NUCLEAR/JOINT

YEAR OF MARRIAGE:

CONSANGUINOUS/NON-CONSANGUINOUS MARRIAGE

H/O MEDICAL ILLNESS

H/O PSYCHIATRIC ILLNESS/TREATMENT

FAMILY H/O PSYCHIATRIC ILLNESS

ILLNESS DETAILS

DURATION OF INFERTILITY:

PREVIOUS H/O STILL BIRTHS/ABORTIONS:

CLINICAL EXAMINATION

RS CVS

ABDOMEN CNS

GYNAECOLOGICAL EXAMINATION

LAB INVESTIGATIONS

BLOOD URINE

APPENDIX – 2

MINI International Neuropsychiatric Interview

General Instructions:

The M.I.N.I was designed as a brief structured interview for the major axis 1 psychiatric disorders in DSM IV and ICD 10.Validity and reliability studies have been done comparing the M.I.N.I to the SCID-P for DSM III and CIDI (a structured interview developed by the World Health Organisation).The results of these studies show that the M.I.N.I has similar reliability and validity properties but can be administered in a much shorter period of time (mean 18.7± 11.6 minutes, median 15 minutes) than the above referenced instruments. It can be used by clinicians after a brief training session. Lay interviewers require more extensive training.

General Format:

a. The M.I.N.I is divided into modules identified by letters each corresponding to a diagnostic category.
b. At the beginning of each diagnostic module (except for psychotic disorders module) a screening questions corresponding to the main criteria of the disorder are presented in a gray box.

c. At the end of each module, diagnostic boxes permit the clinician to indicate whether the diagnostic criteria are met.

Rating Instructions:

All questions must be rated. The rating is done at the right of each question by circling either Yes or No. Clinical judgement must be used by the rater in coding the responses. The rater should ask for examples when necessary to ensure accurate coding. The patient should be encouraged to ask for clarifications on any question that is not absolutely clear.

The clinician should be sure that each dimension of the question is taken into account by the patient.(for example time frame, frequency, severity, and/or alternatives). Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in M.I.N.I.

APPENDIX -3

Socio-economic Scale

Scoring indicators

Education Score

a) Score of self for adults:
b) Score of the guardian for children up to the 20 years:

Income Score

Total Monthly income of the family members living together.

Occupational Score

It takes into consideration financial dependency as well as marital status of the individual

A. Unmarried subjects (including widowed & separated)
   I. Working individual- Occupational Score of the self
   II. Neither working nor dependents – 50% of the sum of educational and income scores
   III. Non-Working dependents - 50% of the occupational score of the guardian upon whom mainly dependent

B. Married Subjects
   I. Both spouses non-Working (dependent) - 50% of the sum of the scores of education and income.
   II. Both spouses non – Working but not dependent – 50% of the sum of the scores of education and income.
   III. Only one spouse working – Score of the working spouse.
   IV. Both spouse working – Score of the spouse having higher occupational position.

Scoring Manual

SL.NO	Educational Categories	Score
1	Up to Vth class	20
2	Less High School	40
3	High School	60
4	Intermediate	80
5	Graduation (excluding professional subjects*) or techinal diploma	100
6	Post – graduation excluding professional subject	120
7	Post graduate diploma in non-professional subjects;B,E;B Tech;B,Arch; MBBS; BMDS; BIMS,MDH;BDS,LLB	140
8	Post graduate diploma or degree in professional subjects;Ph.D	160
9	D.Litt;DSc or Equivalent; award of membership or fellowship from professional institutions of international recognition	180
10	National or international award for the academic or scientific achievements.	200

*Engineering Medicine and Law

SLNO	*Income(Rs)*	*Score*
1	Upto250	20
2	251-500	40
3	501-750	60
4	751-1000	80
5	1001-1500	100
6	1501-2500	120
7	2501-5000	140
8	5001-10,000	160
9	10,000-15,000	180
10	Above -15,000	500
SL.NO	*Occupational Groups*	*Scale*
	I. Skilled and Semi-Skilled	
1.1	Semi-Skilled or Unskilled workers (e.g; barber, shoemaker, gardener, and others of low skilled or unskilled labour)	40

1.2	Skilled workers (drivers, painters, mechanics, printers, watch repairers, typist, plumbers and equivalent)	60
1.3	Skilled workers of higher rank or having special training	80
	2.Office work and Equivalent	
2.1	Peon, Chowkidar, Constable or equivalent	40
2.2	Junior grade office assistant, dispatcher, head constable or equivalent	60
2.3	Senior grade office assistant, sub inspector, or lower grade inspectors (eg; sanitary inspector, supervisors in private or public organization)	80
	3.Teaching jobs	
3.1	Teachers of primary and junior High School	60
3.2	Teachers of High School or Intermediate (excluding Principal of Intermediate College)	80
3.3	Lectures and readers in the University or equivalent; principal of intermediate College	100
3.4	University professors and principals of degree or post-graduate college	120
3.5	Eminent professors having national or international recognition	160
	4. Business	
4.1	Petty business and small shop-keepers	60
4.2	Middle class businessman	80
4.3	Businessman or industrialist of upper strata	100
4.4	Eminent businessman in the town or city	120
4.5	Eminent industrialist in the state or country	160
	5. Professional jobs (medicine, law, and engineering)	
5.1	Individuals in the profession of medicine, Law or technology having no recognized training	60
5.2	Qualified professional having no specialization	80
5.3	Specialist in the professional jobs	100
5.4	Senior Grade specialist	120
5.5	Eminent professionals in the field	160
	5.Professional jobs (Medicine, law, Engineering)	
5.1	Individuals in the Profession of medicine Law or technology having no recognized training	60
5.2	Qualified professional jobs	80
5.3	Specialist in the professional jobs	100
5.4	Senior Grade specialist	120

5.5	Eminent professionals in the field	160
	6.Semi-Professional	
6.1	Junior grade technical or scientific assistants, lower grade semiprofessionals (pharmacists and nursing staff)	60
6.2	Senior grade technical or scientific assistants and the semi-professionals of average grade (psychologists, statisticians, social workers, surveyors, etc.,)	80
6.3	Scientist employed as Class I and Class II in the central Govt.or equivalent employees in either organizations, assistant or joint director or vice-principal in the technical institutions	100
6.4	Directors and Principals in technical institutions	120
6.5	Directors of highly prestigious technical institutions and/or scientist of international recognition	160
	7. Artist and Literary men	
7.1	Low grade artists, actors, writers, religious pundits; palmists and similar others having little expertise	60
7.2	Individuals of above category having considerable expertise	80
7.3	Experts of above categories having high social image	100
7.4	Most eminent writers, poets, magicians, religious figures, artists and actors	120
	8.Agriculture (This category was included because some urban residents may have agriculture or orchard as their main source of livelihood)	
8.1	Small size holding of agriculture or orchard which can hardly meet the basic needs of a family	60
8.2	Medium size holding or agriculture or orchard sufficient for average middle class family in an urban setup	80
8.3	Large size holding of the above nature which can comfortably meet the requirements of an upper middle class family.	100
8.4	Agriculturist or fruit grower of very large size holding	120
	9.Administrative Service	
9.1	Office Superintendent, Section Officers, Inspectors (e.g; Police,Sales	100

Social Status Categories

On the basis of sum scores of the three variables an individual's Status can be ascertained from the following table:
Ascertained from the following table:

Status Category	Total Score	Major Social class	Its description
1	476and above	Very high	Individuals of most prestigious social position, mainly consisting of top-most businessmen, politicians, administrators, scientists, professional men or highly distinguished personal in the other fields.
2	426-475	Very high	Same as above
3	376-425	Upper middle	Individuals of above categories having obviously higher social position but not belonging to the top most category in their specialties. Their standard of living is definitely of a superior class and as such they would constitute only a small percentage of our urban society.
4	326-375	Upper middle	Same as above
5	276-325	Middle Class	Individuals of average social Class belonging to different occupational groups. Their standard of living is quite satisfactory although inferior to the upper middle class. Their individual scores on the 3 variable are likely to be in the range of 80 to 100 .
6	226- 275	Middle Class	Same as above
7	176 – 225	Lower Middle	Majority of urban subjects are likely to belong to this category. Their substandard of living makes their existences on urban society a marginal one. Their individual scores on the 3 variable usually range between 60 to 80.

8	126 – 175	Lower Middle	Same as above
9	76 – 125	Very Low	These individuals are characterized with lower standard of living. Their educational occupational as well as financial position is almost at the lowest level and as such they belong to the most disadvantageous class having very little to survive.
10	UPto 75	Very Low	Same as above

APPENDIX - 4

Hospital Anxiety & Depression Scale (HADS)

A I feel tense or wound up

Most of the time	3
A lot of the time	2
From time to time	1
Not at all	0

D I still enjoy the things I used to enjoy

Definitely as much	0
Not quite so much	1
Only a little	2
Hardly at all	3

A I get a sort of frightened feeling as if something awful is about to happen

Very definitely and quite badly	3
Yes, but not too badly	2
A little but it doesn't worry me	1
Not at all	0

D I can laugh and see funny side things

As much as I always could	0
Not quite as much now	1
Definitely not so much nom	2
Not at all	3

A Worrying thoughts go through my mind

A great deal of the time	3
A lot of the time	2
From time to time but not too often	1
Only Occasionally	0

D I feel cheerful

Not at all	3
Not often	2
Sometimes	1
Most of the time	0

A I can sit at ease and feel relaxed

Definitely	0
Usually	1
Not often	2
Not at all	3

D I feel as if I am slowed down

Nearly all the time	3
Very often	2
Sometimes	1
Not at all	0

A I get a sort of frightened feeling like butterflies in the stomach

Not at all	0
Occasionally	1
Quite often	2
Very often	3

D I have lost interest in my appearance

	Definitely	3
	I don’t take as much as I should	2
	I don’t take quite as much care	1
	I take just as much care as ever	0

A I feel restless as if I have to be on the move

	Very much indeed	3
	Quite a lot	2
	Not very much	1
	Not at all	0

D I look forward with enjoyment to things

	As much as I ever did	0
	Rather less than I used to	1
	Definitely less than I used to	2
	Hardly at all	3

A I get sudden feelings of panic

	Very often indeed	3
	Quite often	2
	Not very often	1
	Not at all	0

D I can enjoy a good book or radio or TV programme

	Often	0
	Not often	1
	Sometimes	2
	Very seldom	3

Appendix – 5

THE MARITAL QUALITY SCALE (FEMALE FORM)

Usually Sometimes Rarely Never

U S R N

1	My husband's opinion carries as much weight as mine in money matters.	U	S	R	N
2	My Husband's tendency to dominate over me creates problems between us.	U	S	R	N
3	Whenever we have an argument, my husband thinks that he is right.	U	S	R	N
4	I look forward to being with my husband	U	S	R	N
5	My husband does not allow things to be done the way I want.	U	S	R	N
6	MY husband does not trust me.	U	S	R	N
7	My husband decides where we will go and what we will do; when we go out.	U	S	R	N
8	When my husband plans our vacation, I enjoy it.	U	S	R	N
9	My husband satisfies my needs	U	S	R	N
10	My husband makes me feel secure.	U	S	R	N
11	My husband is right in his opinions.	U	S	R	N
12	My husband understands my sexual needs.	U	S	R	N
13	I feel satisfied with the way our vacations are spent.	U	S	R	N
14	I cannot win an argument with my husband	U	S	R	N
15	My husband complains that I do not understand him.	U	S	R	N
16	My husband participates in taking decisions for our home.	U	S	R	N

17	I discuss my problems with my husband, as he is capable of helping me.	U	S	R	N
18	My husband passes sarcastic comments about me.	U	S	R	N
19	My husband is not concerned about my parents.	U	S	R	N
20	My husband does not satisfy my sexual needs.	U	S	R	N
21	MY husband understands what I value in life	U	S	R	N
22	The thought of divorcing my husband crosses my mind.	U	S	R	N
23	My husband decides where we will live	U	S	R	N
24	My husband does not bother about my feeling towards him.	U	S	R	N
25	I discuss my long term plans for our family with my husband.	U	S	R	N
26	I feel comfortable in sharing my mistakes with my husband.	U	S	R	N
27	My see life is satisfactory.	U	S	R	N
28	My husband is happy with me.	U	S	R	N
29	My husband is capable of making timely independent decisions.	U	S	R	N
30	My husband tries to understand how I am feeling.	U	S	R	N
31	I appreciate the sacrifices made by my husband.	U	S	R	N
32	My husband does not like me.	U	S	R	N
33	My husband is indifferent to me.	U	S	R	N
		U	S	R	N
34	My husband expects me to do things as he desires.	U	S	R	N
35	My husband does not have much affection for me.	U	S	R	N
36	My husband pays timely attention to his responsibilities.	U	S	R	N
37	My husband shares his feelings with me.	U	S	R	N

38	My husband cooperates with me in maintaining relationship with my parents.	U	S	R	N
39	My husband believes me.	U	S	R	N
40	My husband criticizes me more than appreciating me.	U	S	R	N
41	I regret being married to my husband.	U	S	R	N
42	My suggestions are well taken by my husband	U	S	R	N
43	I feel that decisions taken after a discussion with my husband are good for us.	U	S	R	N
44	My husband argues with me in front of other people.	U	S	R	N
45	My husband is not able to make me happy.	U	S	R	N
46	I agree with my husband regarding the disciplining of the children.	U	S	R	N
47	My husband tries to comfort me when I am upset.	U	S	R	N
48	I share my feelings and thoughts with my husband	U	S	R	N
49	My husband is capable of carrying out his responsibilities.	U	S	R	N
50	On financial matters, my husband consults me.	U	S	R	N

APPENDIX – 6

FEMALE SEXUAL FUNCTION INDEX

1.Over the past 4 weeks, how **often** did you feel sexual desire or interest?

5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?

5 = Very high
4 = High
3 = Moderate
2 = Low
1 = Very low or none at all

3. Over the past 4 weeks, how **often** did you feel sexually aroused ("turned on") during sexual activity or intercourse?

0 = No sexual activity
5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?

0 = No sexual activity
5 = Very high
4 = High
3 = Moderate
2 = Low

1 = Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?

0 = No sexual activity
5 = Very high confidence
4 = High confidence
3 = Moderate confidence
2 = Low confidence
1 = Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?
0 = No sexual activity
5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?

0 = No sexual activity
5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?

0 = No sexual activity
1 = Extremely difficult or impossible
2 = Very difficult
3 = Difficult
4 = Slightly difficult
5 = Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?

0 = No sexual activity
5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

0 = No sexual activity
1 = Extremely difficult or impossible
2 = Very difficult
3 = Difficult
4 = Slightly difficult
5 = Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?

0 = No sexual activity
5 = Almost always or always
4 = Most times (more than half the time)
3 = Sometimes (about half the time)
2 = A few times (less than half the time)
1 = Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?

0 = No sexual activity
1 = Extremely difficult or impossible
2 = Very difficult
3 = Difficult
4 = Slightly difficult
5 = Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

0 = No sexual activity
5 = Very satisfied
4 = Moderately satisfied
3 = About equally satisfied and dissatisfied
2 = Moderately dissatisfied
1 = Very dissatisfied

14. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?

0 = No sexual activity
5 = Very satisfied
4 = Moderately satisfied
3 = About equally satisfied and dissatisfied
2 = Moderately dissatisfied
1 = Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?

5 = Very satisfied
4 = Moderately satisfied
3 = About equally satisfied and dissatisfied
2 = Moderately dissatisfied
1 = Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?

5 = Very satisfied
4 = Moderately satisfied
3 = About equally satisfied and dissatisfied
2 = Moderately dissatisfied
1 = Very dissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?

0 = Did not attempt intercourse
1 = Almost always or always

2 = Most times (more than half the time)
3 = Sometimes (about half the time)
4 = A few times (less than half the time)
5 = Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?

0 = Did not attempt intercourse
1 = Almost always or always
2 = Most times (more than half the time)
3 = Sometimes (about half the time)
4 = A few times (less than half the time)
5 = Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?

0 = Did not attempt intercourse
1 = Very high
2 = High
3 = Moderate
4 = Low
5 = Very low or none at all

FSFI DOMAIN SCORES AND FULL SCALE SCORE

The individual domain scores and full scale (overall) score of the FSFI can be derived from the computational formula outlined in the table below. For individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor (see below). Add the six domain scores to obtain the full scale score. It should be noted that within the individual domains, a domain score of zero indicates that the subject reported having no sexual activity during the past month. Subject scores can be entered in the right-hand column.

DOMAIN	QUESTIONS	SCORE RANGE	FACTOR	MINIMUM SCORE	MAXIMUM SCORE	SCORE
DESIRE	1 , 2	1-5	0.6	1.2	6	
AROUSAL	3 , 4 , 5 , 6	0-5	0.3	0	6	
LUBRICATION	7, 8 , 9 , 10	0-5	0.3	0	6	
ORGASM	11 , 12 , 13	0-5	0.4	0	6	
SATISFACTION	14 , 15 , 16	0(or1)-5	0.4	0.8	6	
PAIN	17 , 18 , 19	0-5	0.4	0	6	

FULL SCALE SCORE RANGE				2	36	

APPENDIX –7

ROSENBERG SELF ESTEEM SCALE

1. On the whole, I am satisfied with myself.

SA -A -D -SD

2.* At times, I think I am no good at all.

SA -A -D -SD

3. I feel that I have a number of good qualities.

SA -A -D -SD

4. I am able to do things as well as most other people.

SA -A -D -SD

5. * I feel I do not have much to be proud of.

SA -A -D -SD

6. * I certainly feel useless at times.

SA -A -D -SD

7. I feel that I’m a person of worth, at least on an equal plane with others.

SA -A -D -SD

8. * I wish I could have more respect for myself.

SA -A -D -SD

9. * All in all, I am inclined to feel that I am a failure.

SA -A -D -SD

10. I take a positive attitude toward myself.

SA -A -D -SD

Scoring: SA=3, A=2, D=1, SD=0. Items with an asterisk are reverse scored, that is, SA=0, A=1, D=2, SD=3. Sum the scores for the 10 items. The higher the score, the higher the self-esteem. Scores below 15 suggest low self-esteem.

Appendix-8

Personality profiles

Name Age: Sex: Date:

Address

¡rdL i P úLsÅLðdá Bm CpûX Guñ T¾p Uhåm Ï\îm

1. ¨ A¼dL¼ U]dáÕLXj¾tLôL Heá¸\ôVô?
   Bm/CpûX
2. Euû] Suá AÈkR RuûUës[SiToLs Euû]
   U¸rÅlTç A¼dL¼ E]dáj úRûYlTå¸\Rô? Bm/CpûX
3. ¨ ùTôçYôL LYûXVtñ CìlTY]ô?
   Bm/CpûX
4. CpûX Guñ T¾ûX Htñd ùLôs[E]dá ºWUUôL Es[Rô?
   Bm/CpûX
5. GûRf ùNnëm êuém ARûL ¿uñ ¿RôÉjç úVôºd¸\ôVô?
   Bm/CpûX
6. HúRô Juû\f ùNnúYu Guñ ¨ Jì Yôdáñ¾ ùLôåjRôp
   ARû] ¿û\úYt\ Gjçû] ºWUeLs HtT¼òm ùLôåjR
   YôdûL ¿û\úYt\ êtTåYôVô? Bm/CpûX
7. Eu Uú]ô¿ûX A¼dL¼ Uôñm RuûUëûPVRô?
   Bm/Cpûx
8. êu úVôNû]ÂuÈl ùTôçYôLd LôÃVeLs ùNnYç iPô?
   Bm/CpûX
9. LôW QÁuÈf úNôoYûPkç úTô¸u\ôVô?
   Bm/CpûX
10. ¨ GûRëm ç½kç ùNn¸u\ôVô? Bm/CpûX
11. LYofºës[AuÉVÃPj¾p úTãmúTôç ¾¥ùWuñ SôQUûPYç
    EiPô? Bm/CpûX
12. GlúTôRô ºX úYû[LÇp LhålTôhûP ªÈ úLôTUûPYç iPô?
    Bm/CpûX
13. A¼dL¼ LôÃVeLs ¿û]jR Uôj¾Wj¾úXúV ùNn¸\ôVô?
    Bm/CpûX
14. ¨ ùNnV ApXç úTNdÏPôR LôÃVeLs áÈjç A¼dL¼
    LYûXlTåYç iPô? Bm/CpûX
15. ùTôçYôL UdLû[f Nk¾lTûRd Lôh¼ím éjRLeLû[l
    T¼lTûR Åìmé¸\ôVô? Bm/CpûX
16. ¨ £d¸Wj¾p YìjRUûP¸\ôVô? Bm/CpûX
17. A¾Lm ùYÇÂp ãtñYRtá Åìmé¸\ôVô? Bm/CpûX
18. Ut\YoLs ùRÃkç ùLôs[dÏPôR úVôNû]Lðm
    ºkRû]Lðm E]dá HtTå¸u\]Yô? Bm/CpûX

19. úNômTXôLúYô ApXç ºX NUVMLÇp ãñãñlTôLúYô
Cìd¸\ôVô? Bm/CpûX
20. ¨eLs ºX B]ôp ÅúNÌ jR S i ToLû [úV AûPV
Åìmé¸±oL [ô? Bm/CpûX
21. ¨eLs TLp L] î Lô i Tç i Pô? Bm/CpûX
22. E u û] l À\o ¿k¾dámúTôç T¾ídálT¾p ùNnV
Åìmé¸\ôVô? Bm/CpûX
23. át\ E QofºVôp A¼dL¼ ¨ Tô¾dLlTå¸\ôVô? Bm/CpûX
24. E u TZdL YZdLeLs GpXôm SpXY] YôLîm
GpúXôìm Åìmé¸u\ ] YôLúYô E s [ ] Yô? Bm/CpûX
25. LÇVôhPeLðdáf ùNpXîm (NôRôW QUôL) ÁdL
U¸rfºúVôå CìdLîm E u]ôp ê¼¸\Rô? Bm/CpûX
26. E u û] ¨ GlùTôïçm U] E û [fNÄp CìlTYu
Guñ ¿û]d¸\ôVô? Bm/CpûX
27. ¨ A¾L ãñãñlTô] Yu Guñ Ut\YoLs
Lìç¸u\ôoL [ô? Bm/CpûX
28. ¨ HRôYç êd¸VUô] Jì LôÃVjûR ùNnçê¼jR
Àu ARû] ÅP Su\ôL ùNn¾ìdLXôúU Gu\ G i Q júRôå
A¼dL¼ Yìkç¸\ôVô? Bm/CpûX
29. Ut\YoLú[ôå úNokç CìdámúTôç ¨ ùTìmTôím
Uî]UôL Cìd¸\ôVô? Bm/CpûX
30. ¨ ºX úYû [LÇp ® i úTfãdá CPUÇdL\ôVô? Bm/CpûX
31. ¨ ÕeLdÏPôR A [Åtá TX ºkRû]Ls E u RûXÂp
GïYç i Pô? Bm/CpûX
32. ¨ GûRVôYç ùRÃkç ùLôs [¿û]dámúTôç
Ut\YoLÇPm ARû] l úTãYûRdLôh¼ím éjRLjûúV
éWh¼l Tôod¸\ôVô? Bm/CpûX
33. E]dá CRVl TPTPlé ApXç CWjR AïjRm
HtTåYç i Pô? Bm/CpûX
34. A¾L LY]m ùNíjçm úYûXûV Åìmé¸\ôVô? Bm/CpûX
35. EPp SådLm E]d HtTåYç i Pô? Bm/CpûX
36. E u û] Gk¿ûXÂím L i åÀ¼dL CVXôR ¿ûXÂp
ÏP ãeL CXôLôÅp E uÉPj¾p ClTûY GpXôYtû\ëm
Lôh¼ÅP G i Ô Yôvô? Bm/CpûX
37. úLÄl úTfãdLs úTãm ÏhPj¾p CìdL E]dá
ùYñlé HtTå¸u\Rô? Bm/CpûX
38. £d¸Wj¾p ùNnVlTåm úYûXLÇp DåTP E]dál
ÀÃVê i Pô? Bm/CpûX
39. ¨ Jì úLôTdLôW]ô? Bm/CpûX
40. HtTPdÏ¼V TVeLWUô] NmTYeLû [d áÈjR ¨
LYûX AûP¸u\ôVô? Bm/CpûX
41. E u ò ûPV SPY¼dûLLÇp ¿Rô]UôLîm TPTPlTé
CpXôUím SPkç ùLôs¸\ôVô? Bm/CpûX

42. ¨ E u úY û Xdá GlúTôRôY ç RôURUôL
ùNuÈ ì d¸u \ôVô? Bm/Cp û X
43. ¨ TVeLWUô] ùNôlTQeLs Lô i Tç i Pô? Bm/Cp û X
44. Ak¿VúWôå TZám úTôç NkRolTjûR CZfçúTôLôUp
GpúXôÃPêm úTN E]dá Å ì lTê i Pô? Bm/Cp û X
45. YÄ úSôîL[ôp ùRôkRWîLs AûP¸u \ôVô? Bm/Cp û X
46. AúSL NkRolTeLÇp A¾Lm úTûW Nk¾dLê¼VôUp
úTô]ôp E]dá Y ì jRm E i Pô¸u \Rô? Bm/Cp û X
47. E]dá AÈêLUô] GpúXôÃPj¾ím, ¨ ¿fNVUôL
Å ì mTôR ºXo C ì d¸\ôoL[ô? Bm/Cp û X
48. ¨ GÇ¾p E QofºYNlTåTY u Guñ E u û]
G i æ¸\ôVô? Bm/Cp û X
49. ¨ J ì NUVSmÀdûL E ûPVY]ôn C ì kRôn Guñ
E u]ôp Ï \ ê¼ëUô? Bm/Cp û X
50. E u û]ëm, E u úY ûX ûVëm áÈjçl À\o
á t\m ÏÈ]ôp ¨ GÇ¾p U]m é i Tå¸\ôVô? Bm/Cp û X
51. U¸rfºLWUô] J ì Å ì k¾p ¨ NkúRôNUôL C ì dLd
LxPm HtTå¸\Rô? Bm/Cp û X
52. Rôr î U]lTôu ûUVôp ¨ ùRôkRWY ûP¸\ôVô? Bm/Cp û X
53. EtNôLUt\ á ï dLÇp E u]ôX EtNôLm E i PôdL
ê¼ëUô? Bm/Cp û X
54. ¨ Juñm AÈVôR LôÃVeLs áÈjçl úTãYç i Pô? Bm/Cp û X
55. ¨ E u EPp SXm áÈjçl LY ûXlTåYç i Pô? Bm/Cp û X
56. AåjRYoLÇPm TÃNôL Å û[Vôhå dLs ùNnV
E]dá Å ì lTUô? Bm/Cp û X
57. ÕdLÁu ûUVôp AY¾lTå¸\ôVô? Bm/Cp û X

EPI SCORING KEY

EXTRAVERSION	NEUROTICISM	LIE SCORE
1 Yes	2 Yes	6 Yes
3 Yes	4 Yes	12 No
5 No	7 Yes	18 No
8 Yes	9 Yes	24 Yes
10 Yes	11 Yes	30 No
13 Yes	14 Yes	36 Yes
15 No	16 Yes	42 No
17 Yes	19 Yes	48 No
20 No	21 Yes	54 No
22 Yes	23 Yes	
25 Yes	26 Yes	
27 Yes	28 Yes	
29 No	31 Yes	
32 No	33 Yes	
34 No	35 Yes	
37 No	38 Yes	
39 Yes	40 Yes	
41 No	43 Yes	
44 Yes	45 Yes	
46 Yes	47 Yes	
49 Yes	50 Yes	
51 No	52 Yes	
53 Yes	55 Yes	
56 Yes	57 Yes	

Lie=4
Neuroticism mean = 11.6±4.6
Extraversion mean = 11.3±3.5